Rockface Developments Ltd

PROPOSED WAREHOUSE DEVELOPMENT AT CITYWEST BUSINESS PARK, KINGSWOOD ROAD, DUBLIN 24

Acoustic Review for Planning

604078 (01)

JUNE 2022

RSK

EXECUTIVE SUMMARY

RSK Ireland Limited (RSK) was instructed by Rockface Developments Ltd to provide an acoustic review of the proposed Warehouse Development at Citywest Business Park, Kingswood Road, Dublin 24. The proposed development will comprise the provision of a warehouse with ancillary office and staff facilities and associated development

The objective of this study is to assess the potential impacts and to reduce the risk of nuisance to neighbouring dwellings arising from operational phase noise emissions.

The nearest residential receptors are the existing dwellings adjoining the north-western site boundary, approximately 26 metres from the edge of the proposed service. There are also existing offices adjoining the northern site boundary, and offices/warehouse buildings to the south, east and west of the site, at varying distances from the proposed warehouse and service yard.

Baseline noise measurements were conducted, in accordance with ISO 1996-2:2017, at locations representative of nearby dwellings. Measurements were taken between 1st and 7th March 2022. Baseline monitoring has found pre-existing noise levels are typical of a suburban location in the vicinity of local and regional roads as well as the nearby N7, N82 and R136 roads. Local and distant traffic was the primary contributor to the baseline noise environment. Daytime background sound levels were in the range 46 to 59 dB $L_{A90,15min}$ with a total average background sound level of 53dB $L_{A90,07:00-23:00}$. Night-time background sound levels were in the range 39 to 57 dB $L_{A90,15min}$ with a total average background sound level of 47 dB $L_{A90,23:00-07:00}$.

In deriving appropriate noise and vibration criteria for construction and operational phases, consideration has been given to relevant Local, National and International Guidelines and Standards, including:

- *Dublin Agglomeration Action Plan Relating to The Assessment and Management of Environmental Noise*, December 2018 – November 2023, Volume 4, South Dublin County Council (SDCC NAP).
- EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4), 2016.
- BS 4142:2014+A1:2019: *Methods for rating and assessing industrial and commercial sound*.

Upon review of baseline noise levels and relevant guidelines, the following criteria for site noise emissions is proposed:

- Residential Receptors: Daytime (07:00 to 23:00hrs): 50 dB $L_{Aeq,T}$.
  Night-time (23:00 to 07:00hrs): 45 dB $L_{Aeq,T}$.
- Office Receptors: Daytime (07:00 to 23:00hrs): 55 dB $L_{Aeq,T}$.

During the developments operational phase, potential noise sources that have been considered include building services plant, car parking activity and service yard/delivery noise. The operational phase noise impact assessment has concluded that emission values to nearby receptors can be mitigated to comply with relevant limit values. Mitigation in the form of a bund and acoustic screen along the perimeter of the proposed service yard has been recommended in order to reduce noise emissions from vehicles and trailers operating in the service yard.

In summary, once consideration is given to the range of mitigation measures outlined in this report, the expected noise impact of the proposed development on nearby sensitive receptors is not significant.

RSK GENERAL NOTES

Project No.: 604078 (01)

Title: Proposed Warehouse Development at Citywest Business Park, Kingswood Road - Acoustic Review for Planning

Client: Rockface Developments Ltd

Date: 23rd June 2022

Office: Dublin

Status: **FINAL**

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LIST OF APPENDICES

1 INTRODUCTION

RSK Ireland Limited (RSK) was instructed by Rockface Developments Ltd to provide an acoustic review of the proposed new Warehouse development (the site) at Citywest Business Park, Kingswood Road, Dublin 24, for the purposes of the Planning submission.

The aim of the assessment is as follows:

- Quantify the baseline noise environment at a location representative of nearby noise sensitive receptors.
- Provide an assessment of the likely noise impact of the proposed development in the operational context.
- Provide design advice and recommendations for mitigation measures, where necessary, to reduce impacts to an appropriate level.

The objective of this assessment is to reduce the risk of nuisance to neighbouring noise sensitive locations resulting from site noise emissions.

2 THE SITE

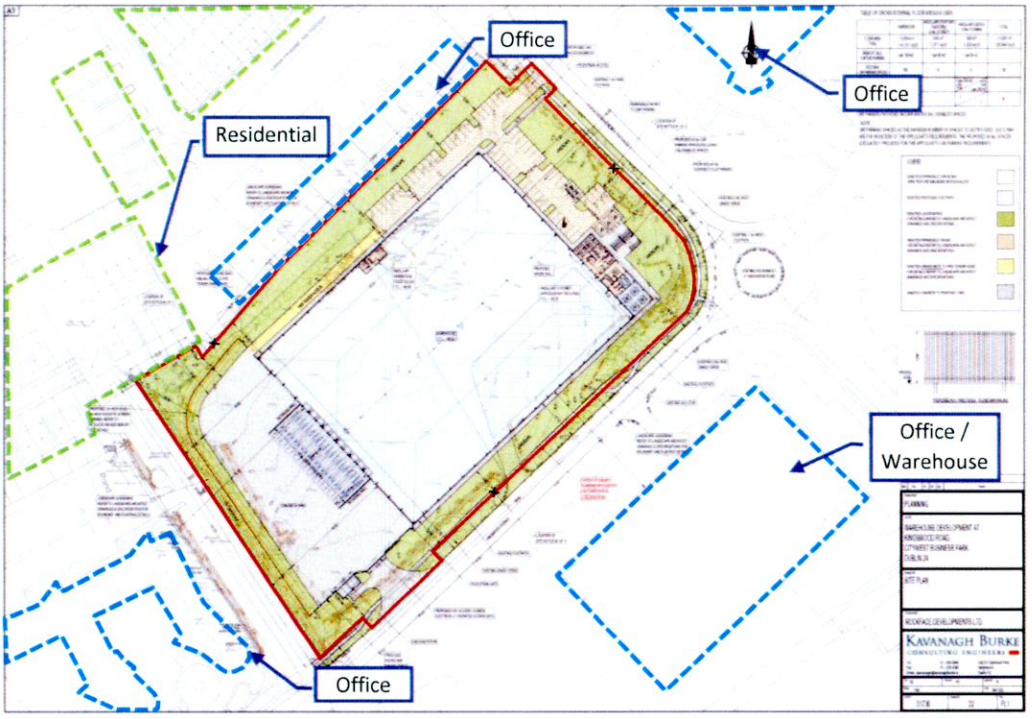
Rockface Developments Limited intend to apply for permission for development at a 2.56 Ha site at Kingswood Road and Kingswood Avenue, Citywest Business Campus, Dublin 24. The lands are generally bounded to the south-east by Kingswood Avenue, south-west and north-west by existing built development and to the north-east by Kingswood Road.

The development will comprise the provision of a warehouse with ancillary office and staff facilities and associated development. The warehouse will have a maximum height of 18 metres with a gross floor area of 11,691 sq m including a warehouse area (10,604 sq m), ancillary staff facilities (499 sq m) and ancillary office area (588 sq m).

The development will also include: a vehicular and pedestrian entrance to the site from Kingswood Road, a separate HGV entrance from Kingswood Avenue; 64 No. ancillary car parking spaces; covered bicycle parking; HGV parking and yards; level access goods doors; dock levellers; access gates; hard and soft landscaping; canopy; lighting; boundary treatments; ESB substation; plant; and all associated site development works above and below ground.

The nearest residential receptors are the existing dwellings adjoining the north-western site boundary, approximately 26 metres from the edge of the proposed service. There are also existing offices adjoining the northern site boundary approximately 20 metres from the proposed warehouse, and offices/warehouse buildings to the east and south at a distance in the range 50 to 85 metres from the proposed warehouse. The offices to the west of the site are approximately 35 metres from the edge of the proposed service yard. Figure 1 shows the proposed development in the context of the surrounding receptors.

Figure 1: Proposed Site Plan showing outline of proposed site and nearby receptors



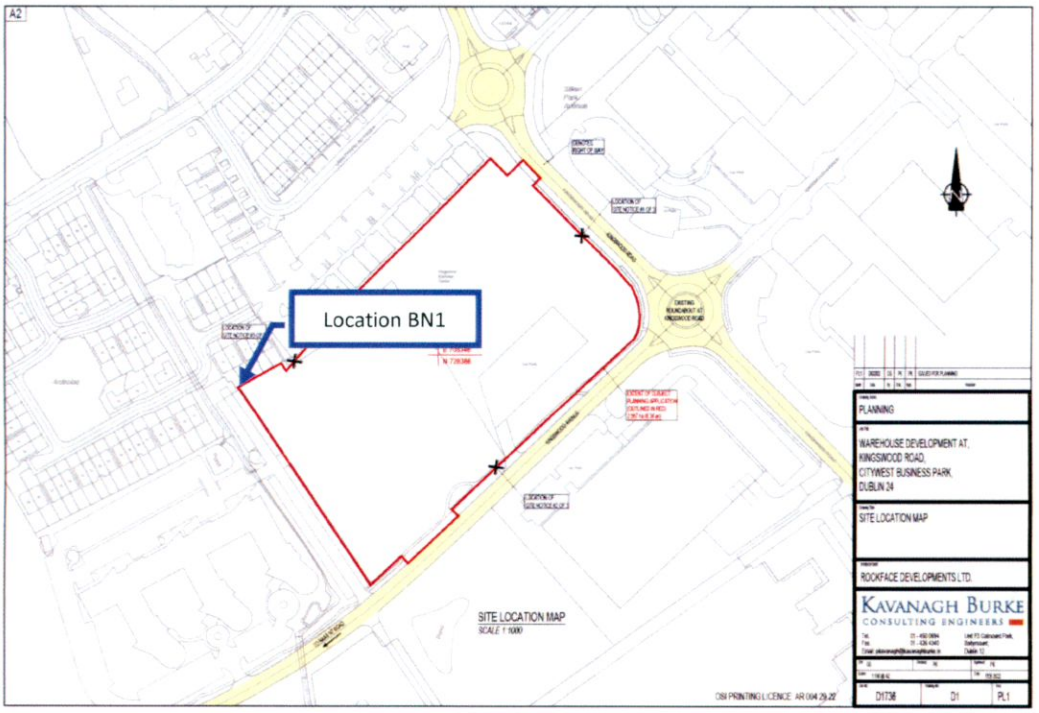
3 BASELINE NOISE SURVEY

A baseline environmental noise survey has been conducted in accordance with ISO 1996-2:2017 *"Acoustics -- Description, measurement and assessment of environmental noise -- Part 2: Determination of sound pressure levels"*.

3.1 Monitoring Location

The measurement location was chosen based on the relative location to sources of environmental noise in the vicinity, as well as locations of noise sensitive receptors. Figure 2 shows the noise measurement location BN1 with description presented below.

Figure 2: Existing Site Plan showing approximate Baseline Noise measurement position



Location BN1

Positioned to establish representative noise levels at the closest residential receptors to the site. The microphone was located adjacent to the site boundary adjoining these dwellings, and approximately 1.6m above ground level. This measurement location is at the position of the proposed service yard. Measurements at this location were carried out for an approx. 7-day period in order to capture typical noise levels during day and night-time periods.

3.2 Survey Period

Noise measurements were conducted between 14:34hrs on 1st March and 09:45hrs on 7th March 2022. The weather during the survey period was generally dry and calm with the occasional shower. Temperatures were in the range 2 to 6 degrees Celsius. Wind speeds were in the range 0 to 4 metres per second in the south-easterly direction.

3.3 Instrumentation

Measurements were made using a Larson Davis SoundExpert® LxT Sound Level Meter and Environmental Monitoring Kit (serial number 0006249). Sample periods were 15-minute log periods. The instrumentation was calibrated using a Bruel & Kjaer Type 4231 Sound Level Calibrator. Calibration certificates are available on request.

3.4 Measurement Parameters

The noise survey results are presented in decibels (dB), using the following parameters:

$L_{Aeq,T}$ is the equivalent continuous sound level and is used to describe a fluctuating sound as a single value over the sample period (T).

$L_{AFmax,T}$ The maximum A-weighted sound pressure level occurring within a specified time period (T). Measured using the "Fast" time weighting.

$L_{AF10,T}$ Refers to those A-weighted noise levels in the top 10 percentile of the sampling interval; it is the level which is exceeded for 10% of the measurement period (T). It is used to determine the intermittent high noise level features of locally generated noise and usually gives an indicator of the level of road traffic. Measured using the "Fast" time weighting.

$L_{AF90,T}$ Refers to those A-weighted noise levels in the lower 90 percentile of the sampling interval (T). It is the level which is exceeded for 90% of the measurement period. It will therefore exclude the intermittent features of traffic and is used to describe a background level without contribution from intermittent sources. Measured using the "Fast" time weighting.

All sound levels in this report are expressed in terms of decibels (dB) relative to 2x10-5 Pa.

3.5 Monitoring Results

Table 1 summarises the measured daytime (i.e. 07:00 to 23:00) noise levels at Location BN1.

Table 1 Measured Daytime Noise Levels at Location BN1

Period	Date	Time	Measured Noise Levels (dB re. $2x10^{-5}$ Pa)				Notes
			L_{Aeq}	L_{Amax}	L_{A10}	L_{A90}	
Daytime	01/03 Tue	14:34-23:00	57	72	58	54	Road traffic dominant from
	02/03 Wed	07:00-23:00	57	87	59	55	
	03/01 Thu		56	82	57	53	
	04/01 Fri		56	73	58	53	
	05/01 Sat		53	83	54	50	
	06/01 Sun		58	108	56	52	
	07/01 Mon	07:00-09:45	55	83	55	52	

Daytime background sound levels were in the range 46 to 59 dB $L_{A90,15min}$ with a total average background sound level of 53dB $L_{A90,07:00-23:00}$.

Table 2 summarises the measured night-time (i.e. 23:00 to 07:00hrs) noise levels at Location N1.

Table 2: Measured Night-time Noise Levels at Location N1

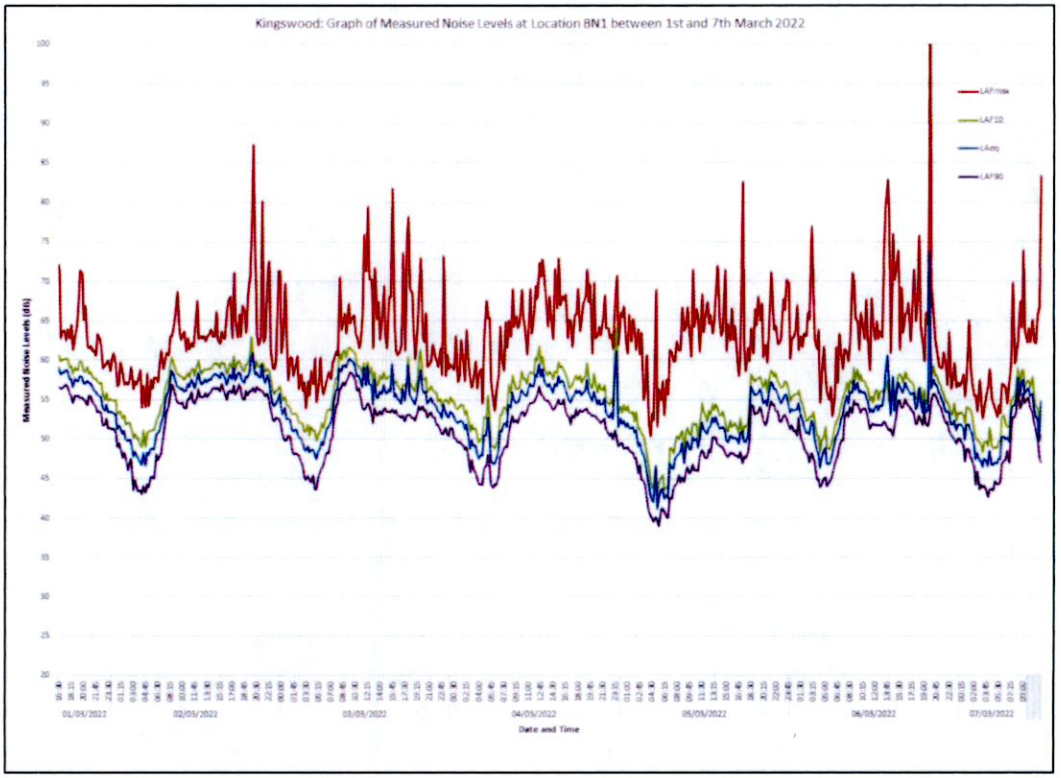
Period	Date	Time	Measured Noise Levels (dB re. $2x10^{-5}$ Pa)				Notes
			L_{Aeq}	L_{Amax}	L_{A10}	L_{A90}	
Night-time	12-13/01 Wed	23:00 - 07:00	53	66	53	48	Local and distant road traffic dominant
	13-14/01 Thu		53	70	54	49	
	14-15/01 Fri		51	69	53	47	
	15-16/01 Sat		48	69	48	43	
	16-17/01 Sun		52	77	53	48	
	17-18/01 Mon		52	74	52	47	

Night-time background sound levels were in the range 39 to 57 dB $L_{A90,15min}$ with a total average background sound level of 47 dB $L_{A90,23:00-07:00}$.

Baseline noise levels would be considered typical for a suburban location, in the vicinity of a well trafficked road network. Distant and occasional local traffic was the primary contributor to the noise environment. Other noise sources of note included birdsong and wind noise on nearby foliage.

Figure 3 presents the time-history graph of the measured noise levels over the duration of the survey.

Figure 3: Graph of Measured Noise Levels



4 NOISE CRITERIA

In deriving noise criteria for the developments' operational phase, consideration has been given to the following documents:

- *Dublin Agglomeration Action Plan Relating to The Assessment and Management of Environmental Noise*, December 2018 – November 2023, Volume 4, South Dublin County Council (SDCC NAP).
- EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4), 2016.
- BS 4142:2014+A1:2019: *Methods for rating and assessing industrial and commercial sound.*

4.1 Local Authority Noise Guidelines

The SDCC NAP, Section 2, discusses *Existing Noise Management Legislation and Guidance*. Section 2.4 of the NAP provides a discussion of *Irish Planning Guidance*, where it is commented that:

> *"Local Authorities can set conditions relating to noise as part of a planning permission. However, there is currently no national policy or guidance that addresses the issue of noise during planning leading to inconsistencies in relation to both the assessment and conditioning of planning applications.".*

The NAP also discusses the EPA Act, Section 108 of which *"sets out a process whereby noise issues may be taken to the District Court, which may make an order requiring that the person or body responsible for the noise takes steps to eliminate or ameliorate the noise in question"*.

Section 2.5 of the SDCC NAP discusses national guidelines that are applicable to industrial sites requiring EPA IPPC Licensing i.e. the EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4), 2016. This document contains typical limit values for noise from licensed sites, to residential receptors, as follows:

- Daytime (07:00 to 19:00hrs): 55 dB $L_{Ar,T}$;
- Evening (19:00 to 23:00hrs): 50 dB $L_{Ar,T}$;
- Night-time (23:00 to 07:00hrs): 45 dB $L_{Aeq,T}$.

The EPA NG4 guidelines are intended for use on EPA licenced sites. However, with consideration of the lack of other national guidelines in Ireland, and as the NG4 document provides methodologies to assess industrial noise emissions to residential receptors, the guidelines are often borrowed by consultants, local authorities and assessors to assess the industrial noise impacts to dwellings at non-EPA licenced sites.

4.2 Other 'Industry Standard' Guidelines

British Standard BS4142:2014+A1: 2019: *'Methods for Rating and Assessing Industrial and Commercial Sound'* (BS 4142) is frequently used in setting criteria for any new industrial/commercial plant items to residential receptors in the Dublin region.

BS 4142 describes methods for rating and assessing sound of an industrial and/or commercial nature, using outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling upon which the sound is incident.

The BS 4142 assessment methodology compares the measured external background sound level (in the absence of plant items) to the rating sound level, of the plant items, when operational. Where sound emissions are found to be tonal, impulsive, intermittent or to have other sound characteristics that are readily distinctive against the residual acoustic environment, BS4142:2014 advises that penalties be applied to the specific level to arrive at the rating level.

In this instance therefore, the daytime and night-time background sound levels captured during the baseline noise survey (as summarised in Section 3.5), have been reviewed in order to set operational phase noise criteria to nearby dwellings.

Based upon measured day and night-time background sound levels on the site (as referred in Section 4.0), appropriate plant noise criteria to nearby dwellings are as follows:

- Daytime (07:00 to 23:00hrs) 50 dB $L_{Aeq,1hr}$
- Night-time (23:00 to 07:00hrs) 45 dB $L_{Aeq,15\text{-}min}$

Plant noise emissions should not contain any characteristics that would warrant any acoustic feature penalties under the BS 4142:2014 assessment procedure.

4.3 Proposed Noise Criteria

Criteria for building services plant noise emissions to off-site noise sensitive locations (NSL's) have been outlined with consideration of the following:

- Pre-existing baseline noise levels measured at the site boundary (Ref Section 3.0), and;
- Relevant guidelines i.e. as discussed in Sections 4.1 and 4.2.

The proposed new plant items shall be selected and designed so as not to exceed the following noise criteria:

- Residential Receptors: Daytime (07:00 to 23:00hrs): 50 dB $L_{Aeq,T}$.
  Night-time (23:00 to 07:00hrs): 45 dB $L_{Aeq,T}$.
- Office Receptors: Daytime (07:00 to 23:00hrs): 55 dB $L_{Aeq,T}$.
  Night-time (23:00 to 07:00hrs): N/A

There shall be no clearly audible tonal component or impulsive component in the noise emission from the proposed development at any noise sensitive location.

5 ASSESSMENT OF POTENTIAL IMPACTS

5.1 Noise Model Details

In order to assist with the assessment of potential operational phase sound levels, a noise model of the site has been developed. *iNoise* is a proprietary prediction package for calculating noise levels from industrial and commercial sources to nearby receptors. Calculations are made in accordance with ISO9613-2:1996 *Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation*, taking into account a range of factors affecting the propagation of sound, including:

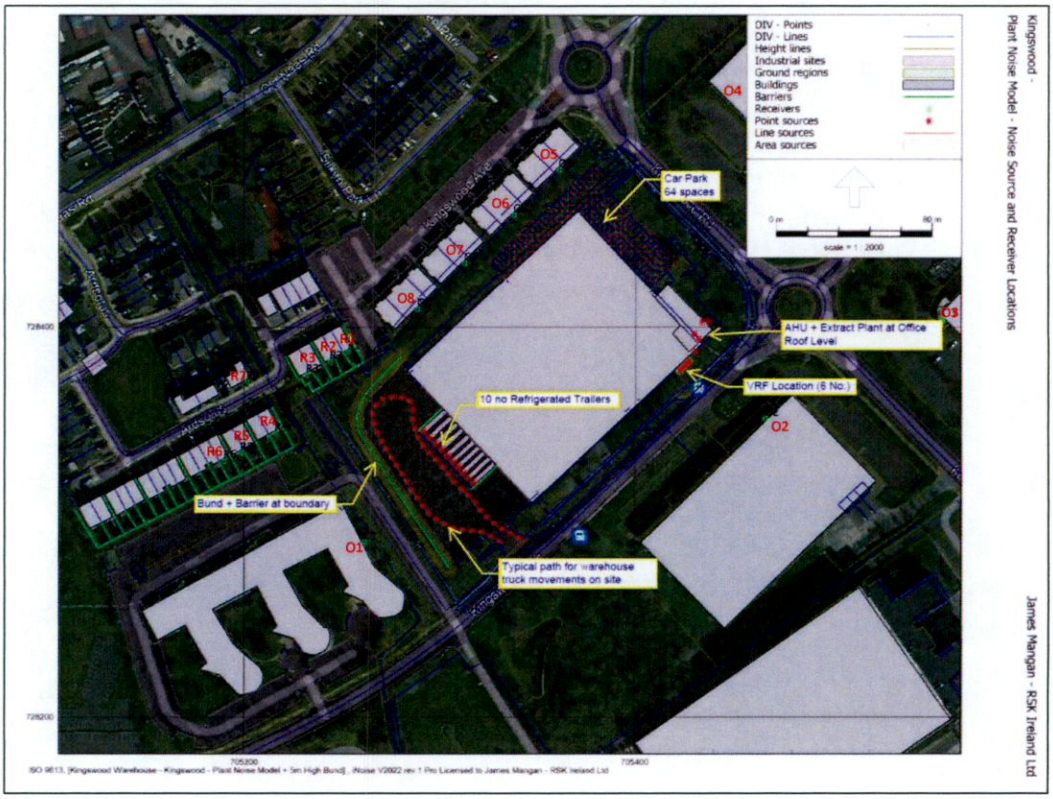
- the sound power level (dB L_w) of the source;
- the % of time that the source operates during both day and night-time periods;
- the height of the sound source;
- the direction and angle that the source is pointing;
- the distance between the sound source and the receiver;
- the provision of obstacles such as buildings and/or barriers in the path between the source and receiver;
- the presence of sound reflecting/absorbing surfaces, and;
- climatic factors such as temperature, relative humidity and atmospheric pressure.

The noise model was generated from an AutoCAD drawing of the site and with use of Google Earth background imagery of nearby buildings, with building heights, noise source heights and receiver locations derived from site sectional/elevation drawings.

The *iNoise* model then calculates noise levels to specific receiver locations (i.e. neighbouring dwellings and offices) which, in-turn, allows for the assessment of noise impacts via comparison of predicted noise levels to the criteria outlined in Section 3.3.

The receiver locations for the purposes of the calculations outlined in the following sections are shown in Figure 4.

Figure 4: Noise Source and Receiver Locations



During the developments' operational phase there will be mechanical and electrical services plant required to service the building, as well as vehicular movements within the service yard and within the car park. The source sound power levels for these new noise sources, as used for noise modelling purposes, are outlined in the following Sections.

5.2 Noise Source Data

5.2.1 Building Services Plant

Table 3 presents the source noise data used (in terms of the total sound power level) for each building services plant item proposed as part of the proposed new Warehouse Development.

Table 3: Sound Power Levels for proposed new Building Services Plant items

Source	Reference	Plant Location (Ref Figure 4)	Source Sound Power Level dB L_{wA}
AHU 03 Air Intake	Fresh Air Duct Systemair AHU 03-Op3	Office Roof	50
AHU 03 Air Exhaust	Exhaust Duct AHU03-Op3 Systemair	Office Roof	56
Extract Duct 01	Daikin VAM500J	Office Roof	55
Extract Duct 02	Daikin VAM800J	Office Roof	59
Extract Duct 03	Daikin VAM1000J	Office Roof	61
VRF (x 6 Units)	6 x Toshiba VRF MMY-MAP2006FT8P	Ground Floor to south of office building	84

This information has been provided by the project design team in terms of preliminary plant selections. In the event that detailed design stage plant selections vary, or that additional building services plant items are required, the plant noise calculations shall be updated to ensure that cumulative noise levels to nearby receptors should do not to exceed the design criteria outlined in Section 4.3.

5.2.2 Car Park

The noise from vehicular use within the car park has been assessed to the nearest noise sensitive locations. Information retaining to typical noise levels from car parks is provided in ISBN 3-936385-26-2 / ISSN 0723-0028 "*Parking Area Noise - Recommendations for the Calculation of Sound Emissions of Parking Areas, Motorcar Centers and Bus Stations as well as of Multi-Storey Car Parks and Underground Car Parks*", 6. Revised Edition.

This Standard describes methods for establishing and calculating source noise levels from car parks of different type, capacity, intensity of use and construction. Section 8.2 entitled *Parking Areas at Ground Level*, prescribes a calculation method for *Normal Case* as follows:

$$L_{w''} = L_{w0} + K_{PA} + K_I + K_D + K_{Str0} + 10.\lg (B \cdot N) - 10.\lg (S/1m^2) \text{ in dB(A)}$$

Where: $L_{w''}$ = Plane-specific sound power level of all processes in the parking area.

L_{w0} = Initial sound power level for one motion/hr (Ref. Table 30: 63.7 dB(A) for a P+R parking area).

K_{PA} = Correction for parking area type (Ref. Table 34: 0 dB(A)).

K_I = Correction for impulse character (Ref. Table 34: +4 dB(A)).

K_D = Correction for traffic passaging and searching for carport in the driving lanes = 2.5 x lg (f . B - 9).

K_{StrO} = Correction for lane surfaces (0 dB(A)).

f = Carports per unit of the reference value (1.0 for P+R).

B = Reference quantity of car parking spaces (64 No.)

N = Motion frequency during the daytime period (6am - 22pm) = 0.4 (Ref. Table 33 Parking Area (overground)).

S = Total area resp. partial area of the parking area.

On the basis of the above calculation with 64 no. car parking spaces, a plane-specific sound power level ($L_{W''}$) of 81 dB(A) has been calculated for the proposed car park.

Annex A of ISBN 3-936385-26-2 describes the method to follow to calculate the sound level at an assessment location (i.e. residential/office buildings) and recommends noise propagation calculations are carried out in accordance with ISO 9613-2.

5.2.3 Service Yard / Delivery Activity

The noise from Service Yard / Delivery Activity has been assessed to the nearest noise sensitive locations. Information relating to Service yard activity has been provided by the Traffic Consultant (Stephen Reid Consulting Traffic and Transportation) and is reproduced below:

- Estimated daily total vehicle movement 122.
- Peak hour (08:00 – 09:00hrs) movements: 11.
- Typical operational hours 05:00 – 21:00hrs.

The service yard/delivery area is located to the west of the warehouse where delivery vehicles will drive into the designated area and then reverse their vehicle into the proposed docking bays, and then load/unload their vehicle. Goods will typically be rolled into/out of the main warehouse building, before the delivery vehicle departs the site.

At this stage and considering that the use of the warehouse is speculative, the exact type of truck/trailer delivering goods to/from site is not known. In order to give an estimation of the potential worst-case scenario, noise source data from a refrigerated trailer has been used. It is assumed that any refrigerated trailers used on site will have sound power levels not exceeding the value outlined in Table 4 (i.e. 91 dB L_{wA}) which is representative of the typical noise level from a refrigerated trailer when plugged into an electrical power source. The noise levels generated by Service Yard / Delivery Activity have been calculated based on source levels taken from the noise modelling software *iNoise* database, which are presented in Table 4 below.

Table 4: Sound Power Levels for proposed Service Yard Activity

Source	Reference	Plant Location (Ref Figure 4)	Source Sound Power Level dB L_{wA}
Refrigerated Trailer (x10)	Trucks – trailer cooling – electric[1]	Service Yard	91 (per trailer)
Vehicle Movements in Service Yard	Warehousing & Distribution[1]	Service Yard	58 (per linear metre x ~225 metres)

On the basis of the above source noise levels, with corrections applied regarding activity duration, distance and screening due to the proposed boundary treatments, noise calculations from Service Yard / Delivery Activity have been calculated to nearby receptors.

5.3 Noise Mitigation

5.3.1 Building Services Plant

At the detailed design stage of the project, each mechanical services plant item that emits noise to the atmosphere shall be designed to ensure noise emissions do not exceed the limit values stated in section 5.2.1, with individual plant items not exceeding the noise levels presented in Table 3.

In the event that detailed design stage plant selections vary, or that additional building services plant items are required, the plant noise calculations shall be updated to ensure that cumulative noise levels to nearby receptors should do not to exceed the design criteria outlined in Section 4.3.

5.3.2 Car Park

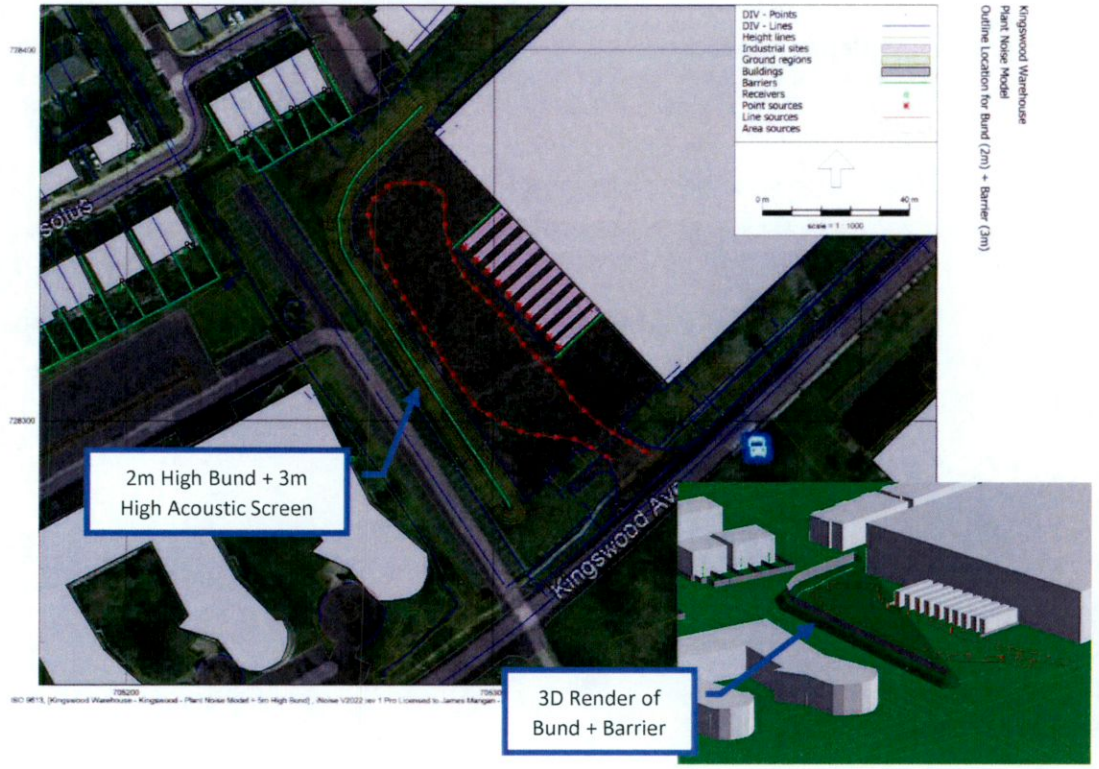
Calculations indicate that noise mitigation measures are not required with regard to the operation of the proposed car park.

5.3.3 Service Yard / Delivery Activity

Noise mitigation measures have been incorporated into the design of the proposed development in order to control noise emissions from service yard activity and delivery vehicles to nearby receptors. The noise mitigation measures consist of a perimeter bund, of minimum 2 metre height, with a barrier, of minimum 3 metre height, located on top of the bund. Figure 5 shows the indicative location of the proposed bund/barrier treatment.

[1] Ref *iNoise* catalogue of sound power levels

Figure 5: Noise Model Images of Proposed Service Yard Perimeter Treatments



The acoustic treatments at the locations highlighted above shall consist of a solid acoustic screen, with a minimum surface mass of 12kg/m^2, with no gaps or openings along the extent of the screen. The height of the proposed acoustic boundary treatment shall be minimum 3 metres from the top of the bund (i.e. a 5-metre total height of the combined bund and barrier). The total length of the barrier is approx. 130 metres.

5.4 Assessment of Calculated Noise Levels

5.4.1 Residential Receptors

Table 5 presents the results of the noise calculations to the nearby residential receptors, and comparison to the site noise limit values.

Table 5: Warehouse Noise Assessment to Neighbouring Dwellings

Receptor	Calculated External Noise Level at Receptor (dB $L_{Aeq,T}$)	Plant Noise Criteria (dB $L_{Aeq,T}$)	Complies?
R1	Day: 43	Day: 50 Night: 45	✓
	Night: 42		✓
R2	Day: 45		✓
	Night: 45		✓
R3	Day: 46		✓
	Night: 45		✓
R4	Day: 45		✓
	Night: 44		✓
R5	Day: 43		✓
	Night: 43		✓
R6	Day: 43		✓
	Night: 42		✓
R7	Day: 44		✓
	Night: 44		✓

Calculated noise levels comply with the noise criteria at nearby residential receptors for both daytime (07:00 – 23:00hrs) and night-time (23:00 – 07:00hrs) usage.

Figures 6 and 7 present the calculated daytime (50 dB(A)) and night-time (45dB(A)) noise contour at the residential receiver locations.

Figure 6: Daytime (50 dB(A)) Warehouse Noise Prediction Contour: First Floor Level

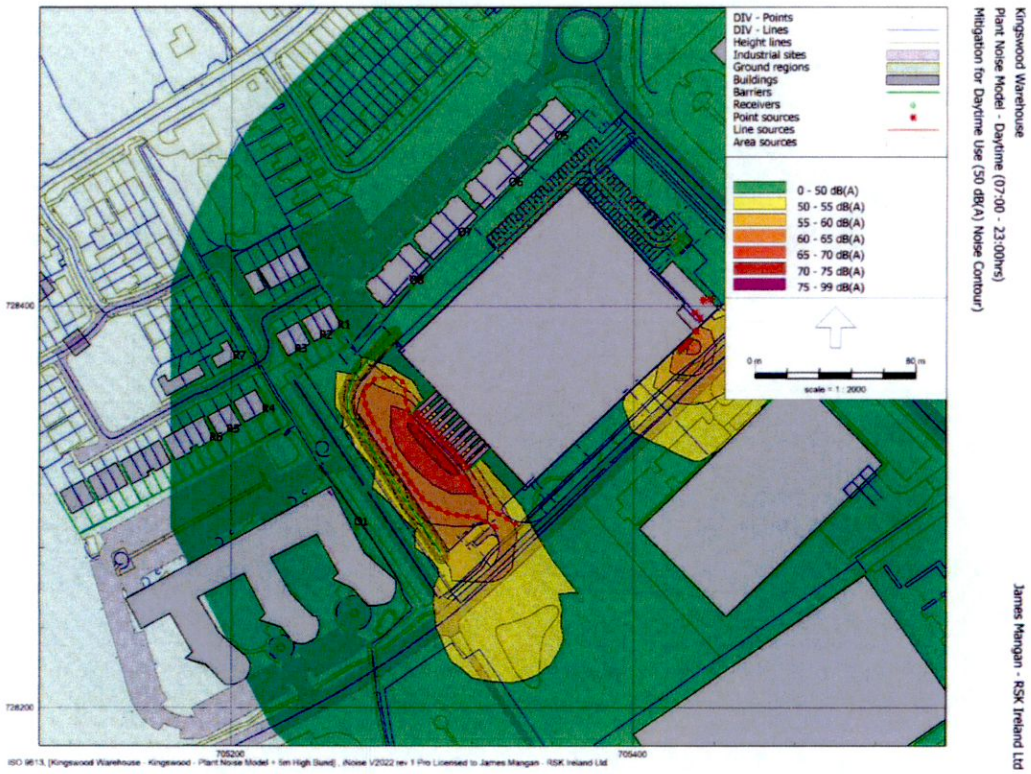
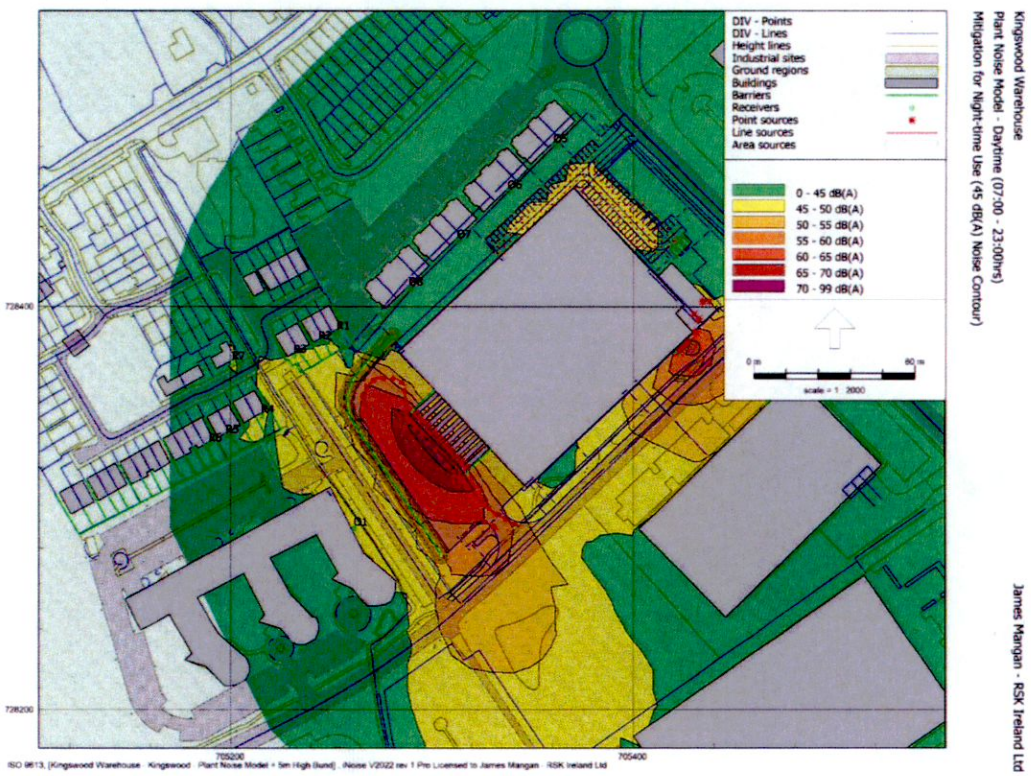


Figure 7: Night-time (45 dB(A)) Warehouse Noise Prediction Contour: First Floor Level



5.4.2 Office Receptors

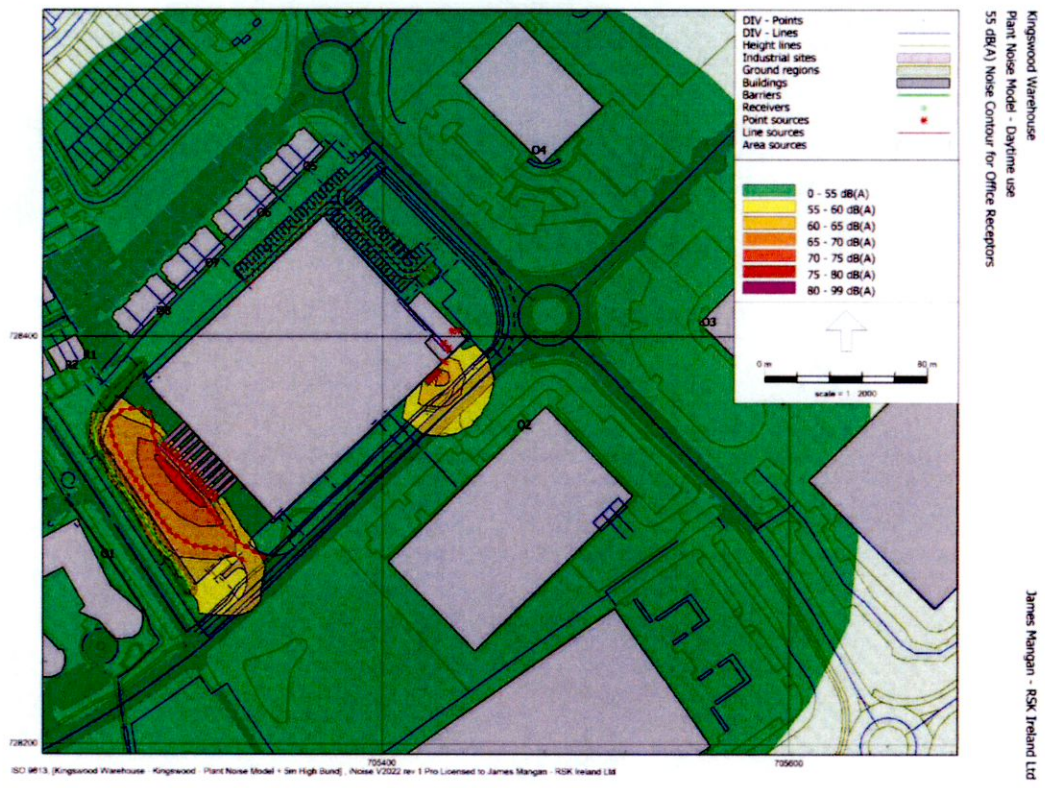
Table 6 presents the results of the noise calculations to the nearby office receptors, and comparison to the site noise limit values.

Table 6: Warehouse Noise Assessment to Neighbouring Offices

Receptor	Calculated External Noise Level at Receptor (dB $L_{Aeq,T}$)	Noise Criteria (dB $L_{Aeq,T}$)	Complies?
O1	47	Day: 55	✓
O2	50		✓
O3	40		✓
O4	31		✓
O5	42		✓
O6	42		✓
O7	38		✓
O8	35		✓

Calculated noise levels comply with the noise criteria at nearby office. Figure 8 presents the calculated daytime (55dB(A)) noise contour to the office receptors 1 to O8.

Figure 8: Daytime (55 dB(A)) Warehouse Noise Prediction Contour: First Floor Level



6 CONCLUSION

RSK were appointed to provide an acoustic review of the proposed Warehouse Development at Citywest Business Park, Kingswood Road, Dublin 24. The proposed development will comprise the provision of a warehouse with ancillary office and staff facilities and associated development.

The aim of this study is to provide an assessment of potential noise impacts to nearby receptors and to provide recommendations, where necessary, to reduce potential impacts.

Baseline monitoring has found pre-existing noise levels are typical of a suburban town location in the vicinity of a well trafficked road network. Local and distant traffic was the primary contributor to the noise environment.

During the developments operational phase, potential noise emissions that have been considered include building services plant, car park activity and service yard/delivery noise. The operational phase impact assessment has concluded that emissions to nearby receptors can be mitigated to comply with relevant limit values.

In summary, once consideration is given to the range of mitigation measures outlined in this report, the expected noise impact of the proposed development on nearby receptors is not significant.

APPENDIX A
SERVICE CONSTRAINTS

RSK ENVIRONMENT LIMITED SERVICE CONSTRAINTS

1. This report (the "Services") was compiled and carried out by RSK Ireland Limited (RSK) for Rockface Developments Ltd (the "client") in accordance with the terms of a contract between RSK and the "client". The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.

2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.

3. Unless otherwise agreed the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be** well advised to seek independent advice from a competent environmental consultant and/or lawyer.

4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK 's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date hereof, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.

5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.

6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.

7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.

8. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.